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GENERAL
CULTURAL
NOTES
ON
CATTLEYAS



*For the Connoisseur and Collector
For the Commercial Grower
From Quality Seedlings to Exhibition Type Varieties*

FRED A. STEWART

CATTLEYAS • CYMBIDIUMS • CYPRIPEDIUMS

"The Finest in Orchids"

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RECOMMENDED CATTLEYA CULTURE

There are increasing numbers of persons who are desirous of growing Cattleya orchids, or who, as beginners, are anxious to be successful in growing these grand plants. Many years ago orchid culture was considered a rich man's hobby. Most of the orchid plants then in cultivation were in the greenhouses of the wealthy Europeans, mostly the British. These were plants, or propagations of plants, collected at considerable expense from their native habitats. Attempts at hybridizing were few and success came seldom. It was not until the development of the laboratory method of handling seed, about thirty years ago, that the production of new and improved hybrids became commercially practical. With this revolutionary procedure has come an endless procession of finer and better hybrids, together with greatly reduced costs in production. Now it is possible to purchase good hybrids at relatively low prices, and the amateur grower is successfully cultivating them in numerous small greenhouses over the entire country. We can safely estimate that thousands of people are growing tens of thousands of orchids in this country today and continually more people are taking up this fascinating avocation. Now the orchid fancier and the orchid neophyte are banded together in societies where their plant problems are discussed with interest and their specimen plants displayed with pride. It is indeed a completely fascinating hobby and not necessarily an expensive one.

HOW TO GROW CATTLEYAS

When we refer to Cattleyas we also include all of the allied hybrids such as Laelio-cattleyas, Brasso-cattleyas, Brasso-laelio-cattleyas, etc. All of these types require basically the same care and are generally referred to as Cattleya hybrids.

VENTILATION – HUMIDITY – TEMPERATURE

Obviously, if we are to successfully grow plants indigenous to the hot humid jungles of Central America and northern South America, we must to the extent practically possible, create conditions similar to those of their native habitat. This may seem involved, but it is not too difficult to approximate these conditions in our glass houses by the use of shading and the control of heat and moisture. Contrary to the common opinion, within certain limits, the Cattleya is a rather rugged subject and will survive under considerable mistreatment and actually thrive if given only half a chance.

In the jungles, the Cattleyas favor positions in the tree tops where they receive a liberal amount of sunlight, air, and humidity. They are subjected alternately to hot, drying winds and to torrential tropical downpour of rain. The jungle winds carry much humidity.

In the greenhouse, air must be admitted as weather conditions will permit. A motion of air is beneficial but air should not be admitted to the extent that the necessary humidity is lost. In warm or hot weather more air is necessary to prevent the building up of too high temperature. At the same time, steps are necessary to maintain humidity. This is done sometimes by mechanical means such as sprays or atomizers usually located under the benches and sometimes automatically controlled, or humidity is created by dampening down; that is,

wetting the floors and the benches between the pots with an occasional light spraying of the plants. Caution: Do not spray plants in dark, cloudy weather or late in the day. A relative humidity of between 60° and 80° is desirable. During cold, dark days little if any dampening or watering should be done.

The above suggestions apply mostly to flowering size plants. Where seedlings below flowering sizes are being raised, the general rule is to keep them warmer, more shaded, and more moist. With seedlings, we seek vegetative growth and are not concerned about hardening off and practices necessary for good flower production. In ventilating mature plants, we must attempt to keep the air in our house cool and moist at all times, if possible. On a normal day, as the temperature rises to the middle or high seventies F., it is advisable to provide some ventilation to cushion the rise. Try to avoid cold drafts or rapid changes in temperature. An illustration of poor ventilating would be if the orchid fancier let the temperature in the greenhouse rise to 90° F. or above and then opened the ventilators wide to let in a rush of cold air with a subsequent drop of 15° to 20°. A gentle rise and fall in temperature is desired. Remember that one inch of ventilation on a windy day is equivalent to ten inches or more on a calm day. Throughout southern California, where the conditions are semi-arid, the common "desert cooler" has proven to be of great benefit in growing orchids. This conditions the air on the evaporative principle. The cooler consists of a metal box in varying sizes, the sides of which are louvered frames filled with wood wool. Water is trickled through this wood wool by a circulating pump. The air is drawn through these sides and blown into the greenhouse by a fan inside the cooler. The principle is that the hot dry air when drawn through the wet pads is moistened and lowered considerably in temperature. On hot, dry summer days when the outside temperatures are running into the 90's, it is possible to keep the temperature 10° or 15° lower. This type of ventilator or air conditioner is suggested for those persons living in localities where the climate is hot and dry during certain times of the year.

Because the *Cattleya* is a tropical plant, it is common belief that high temperatures are essential. The *Cattleya* is an intermediate house subject. Though the temperatures recommended here may vary somewhat, experience has shown that these are safe averages. A minimum night temperature of about 60° the year around is advised. On cold nights if the temperature dips into the high 50's, no harm will come. Some growers try to maintain minimum night temperatures of from 62° to 65°. Higher night temperatures of from 65° to 70° are definitely advised for seedlings up to flowering size, but in small greenhouses where all genera and age groups are grown in one house, an average of from 60° to 65° is best. The temperature can rise in the day time according to the weather and season of the year. A good general rule is to adjust conditions, that is, ventilation, shading, spraying, etc., so as to keep the temperature variation within 30° if possible. In other words, for a gentle spring day, when conditions are generally ideal, the house can run from 60° minimum temperature at night to a maximum of 80° to 90° during the hottest part of the day with the aid of some ventilation and perhaps some spraying of the plants during midday. Temperatures higher than 90° F. are not necessarily harmful to the plants if humidity is maintained;

in fact, the seedlings like it hot and moist, but when good flower quality is sought, a narrower temperature range is necessary.

WATERING

Though there are many refinements to the art of watering orchid plants; one basic bit of instruction to the beginner is by far the most important. When you water your plants, be sure that the *Osmunda* is thoroughly wet; don't go half way. The second part of this basic rule is to be sure that the plant is dry before watering. It is good practice to always let any plant go for a day or so longer without water when there is any doubt as to whether water should be applied. The only harm that can come from delaying watering will be a slight shriveling of the back bulbs. These will plump up again as soon as the plant has been given a good soaking. Always bear in mind that there are variations in this rule such as the watering of young seedlings. These plants must not be permitted to run too dry or they are apt to suffer a check in growth. Seedlings as well as mature plants benefit from having their leaves sprayed during the middle of the day in warm weather. Dampening between the pots of mature plants at mid-morning or during the heat of the day is also very beneficial. Let us repeat a warning against over watering. Many beginners lose the roots on their plants and frequently lose the plants entirely through over watering. *Cattleya* roots are thick and fleshy and capable of absorbing and holding a considerable amount of water within themselves. This condition invites rotting of the roots if the potting media is continually kept too wet. The amounts of water supplied must be regulated to the requirements of the plant. When the plant is actively producing new growth or flowers, more moisture is necessary. A drying out of the *Osmunda* between waterings encourages the production of new roots.

With respect to the care of newly potted orchids, we must bear in mind that in most cases repotting is quite a shock to the plant. Our concern then is to do whatever we can to assist the plant in getting re-established. Newly potted plants should be put in a well shaded location with the temperature and humidity kept higher than normal if it is at all possible. Plants should be sprayed overhead several times a day and run dry at the roots. The principle here is that if we run a plant dry at the roots, it will induce rooting where if we keep it wet we promote top growth. This is a good rule to keep in mind in watering all other orchids also. As soon as the plant shows new root development and a return to normal conditions, watering can be restored as usual.

MEDIA FOR GROWING CATTLEYAS

Cattleyas have been grown in gravel, various composts, Redwood fibre, sphagnum moss, osmundine, and other fern products. The *Cattleya* has proven remarkably adaptable and can be grown with fairly good success in almost any type of media provided it is moist enough to admit the air and solid enough to hold moisture, and to supply the plant with the necessary nutrients. We are quite emphatic about recommending osmundine as the preferred growing media. Even though it may be more expensive initially and the potting with osmundine requires

more time and skill than with some of the other medias, we believe the long term results are more satisfactory. There are two types of osmundine; the black, stringy type that comes from the New Jersey-New York areas which is preferred by some growers because it lasts longer and drains and aerates more quickly, and there is a softer, yellow-brown type that comes from Florida. Being softer, it is easier to handle and holds moisture longer. This type is definitely preferred for seedlings. Many growers use a mixture of the two types for mature plants. In southern California there is a considerable use, among amateur growers particularly, of a commercial compost known as E Z R Grow. For Cattleyas we favor this media for seedlings up to the 2½" pot size when we change to osmunda.

POTTING

Proper potting is of prime importance in Cattleya culture. Due to the complex breeding of many of our hybrids, it is difficult at times to determine when to repot; however, there are some general rules that can be applied to most plants. A plant is ready for repotting (1) when the new growth extends beyond the edge of the pot, the plant has flowered and the growth is starting to root, and (2) when the potting media has broken down or soured. Ordinarily a plant needs repotting every second year. The ideal time to repot is immediately after flowering, or if for any reason it cannot be done then, in the late winter or early spring before growth begins. Some growers wait until new eyes and new roots are beginning to show. This is common practice but requires more care and skill to avoid damage to the new roots. They are extremely brittle. Another set of conditions when repotting is indicated is when the plant is growing over the edge of the pot but has not flowered and is starting to root. If the plant is repotted before flowering, the quality of the flowers on the repotted plant will not be as good as usual but all of the new roots will have the benefit of growing in the new media and the following flower crop will consequently improve. An alternate way to handle this type of plant is to firmly attach a chunk of peat to the outside of the pot, thus providing media for the new roots. Thus the plant will not be disturbed until after it has flowered. When repotting, it is general practice to allow space for two years' growth in the new pot. The last growth can be over the side of the pot. There are cases when due to poor potting and over watering, the osmunda breaks down before the plant has grown to the edge of the pot. If this should happen, it is best to repot and restore the plant to fresh osmundine.

A good general rule for seedlings is to allow for about three growths between repots. When repotting mature plants, the question of division is often asked. A good rule here is to allow three or four mature bulbs to the plant. Quite often it is good to have the plant consist of considerably more bulbs if the rhizome is short as is the case with some straight Cattleya hybrids. Avoid overpotting. It is difficult to keep the roots in good condition in seven and eight inch pots. Best results can be obtained if mature plants are divided so as to permit them to go into five, five and one-half, and six inch pots.

Regarding the care of back bulbs, cut off the back portion of plants that are being potted into sections of two or three bulbs each. A satisfactory method of

handling back bulbs after they are taken off for repotting is to put a group of them together in a six inch pot and place the pot in a heavily shaded, warm part of the house. They then should be sprayed daily and examined frequently for signs of growth. When the divisions start to grow and root, they then can be potted up. During the active growing months, most back bulb divisions will start to grow almost immediately. When cleaning up the plant for repotting, cut off the old dead or excessively long live roots, retaining the healthy, active roots.

When handling the osmunda, it is advisable to dampen it slightly. This will make it less dusty, less brittle, and more convenient to handle. It is difficult to explain how to repot a plant but basically when the osmunda is put in the pot try to avoid balling it or packing it in such a way as to restrict good drainage. Try to place the pieces in without balling and force the material around the plant and to the center of the pot rather than ramming the pieces in one on top of the other. If we could carefully arrange a mass of osmunda loosely around the plant and then take two halves of a pot and force them together with the result that the peat was firmly packed around the plant, we would have a graphic idea of how the peat should be placed. The beginner is apt to wonder why the commercial grower packs the osmunda so tightly around the roots when repotting. It is characteristic of *Osmunda* to soften up considerably after it has been in the pot for a few months and if it is not packed in tight at the time of repotting, satisfactory long term conditions are not maintained.

SHADING

Since we are dealing with growing things it is difficult to underestimate the value of proper light control for the plants we grow. In temperate regions such as the United States the light intensity and length of day varies greatly according to season. We must then try to maintain uniform light intensities for our plants by varying the shading on our houses. How much shading a house needs at a certain time of the year and when it should be put on or taken off is determined by the locality of the grower. As the grower becomes accustomed to his plants, he will determine the amount of shading by the coloration of the leaves. Watch the color of the foliage. The leaves on a mature *Cattleya* plant should have a slightly yellow cast which indicates that the plant has a reasonably hard woody growth rather than a soft rank one. That is, if we seek the best flower quality. The best looking dark green plants are seldom the ones that bear the best flowers. Throughout the summer months the shading is at its maximum and can remain much the same, however, about the end of October it is advisable to take most of this off. If the house runs east and west, the north roof can be cleared of shading entirely. There are two periods when we must drastically adjust our shading; in the fall and in the spring. A word of caution here is advisable. It is better to gradually remove the shading and the same applies to putting it on rather than to suddenly subject the plants to sharp changes in light intensities.

There are various methods of shading. Where a considerable expanse of glass is involved, a hot lime solution sprayed on the glass has a considerable degree of permanency and will last through a number of rains. This is made by taking

processed quick lime and adding this to water to the desired consistency. When this type of lime is added to water, heat is generated, so it is advisable to use caution in mixing. This can then be sprayed on the glass. Cheesecloth stretched over the glass on the inside of the house is a good protection against burning in the event that rains should wash off the shading in any large area. Quite a few growers use lath shading with very good results. The spacing of the lath will have to vary according to the locality. Roller shading and louvered shading are also very desirable. Another good type of shading for the small grower who must be away from his plants during the day is a very light coating of white lead and linseed oil on the outside of the glass. This must be put on very thin. Over this can be put a less permanent supplemental shading as is needed.

In as much as orchid growing consists of repeating a great many simple procedures, there are a number of questions we are asked repeatedly each year. With the belief that listing some of these questions and their answers will be of benefit the following is submitted.

Q. *Where can I grow Cattleyas?*

A. Theoretically any place where approximate temperature range of from 60° F. to around 80° or 90° F. can be maintained and with a relative humidity of from 60 to 80. A sunshiny window, sun porch, solarium or wardian case is satisfactory, though we do recommend a conventional glass house for maximum results.

Q. *What are the best ways to get good stock?*

A. There are two ways, the first is by purchasing divisions off proven stock or by getting plants in bloom; this understandably is the most expensive. The second is through purchasing seedlings of good breeding. This is the best way if orchid funds are limited. If the purchaser is careful to select plants only from reputable growers and avoids bargain counter stock, the average value of seedlings on flowering will prove a satisfactory investment.

Q. *How often shall I water?*

A. This is determined by a number of things. On the average a mature plant will take water about once a week during the active growing season. This frequency will vary according to the weather. A plant in a 7" pot may only need water about once a month during the winter or during a cloudy period.

Q. *How can I tell if a plant has lost its roots?*

A. There are several conditions to look for. The first is an excessive shriveling of the bulbs and leaves with accompanying yellowing of the foliage. The leaves of plants that have lost their roots have a shriveled corrugated appearance. Do not bend them at this time for unlike healthy leaves large brown areas will develop where they are bent. Another sign of lost roots is progressively smaller or aborted growths or flowers far below normal quality.

Q. *What should I do to plants that have lost their roots?*

A. The best practice is to repot in fresh Osmunda and give the same treatment as newly potted plants. Many growers find Ashtons EZR Grow, a leaf mold-redwood bark growing mixture, is very good for bringing back plants that have lost their roots.

Q. *To what pests may my Cattleyas be subject?*

A. Cattleyas and allied hybrids are relatively pest free. Scale and thrip are the two common enemies and they both can be controlled by regular monthly sprayings with DDT.

Q. *How can I tell when a plant needs water?*

A. Familiarity with specific plants will show that a pot is lighter when dry. Inspection of the surface peat will show that it is brown and brittle when dry and dark, or black and flexible when wet. Look at the surface roots, they are white when dry and a mossy green when wet. Examine the crock in the bottom of the pot. If it is moist it indicates that the peat in the middle of the pot is still wet. Pushing a pencil or small stick into the pot will further indicate the degree of dryness.

Q. *I have quite a number of new growths that have developed without sheaths and are not flowering. What is the cause of this?*

A. This is generally the result of not giving the plants enough light. It is suggested that the grower examine his shading and see how much he can take off without excessive yellowing of the foliage.

Q. *What is the cause of brown sheaths?*

A. In Mossiae and Mossiae hybrids it is a normal condition for the sheaths to turn paper dry several months before the buds come up. Attention is necessary especially in the case of plants producing succulent sheaths when the sheath commences to turn brown. This is usually the result of too high humidity. Sheaths of this type should be cut off at the tip or slit down so as to let air in and let the moisture escape.

Q. *What does sunburn look like?*

A. Generally this shows up as large black spots on the foliage which dry up and do not spread. This is usually caused by the shading being washed off the glass by rains and the plant being suddenly subjected to unfiltered high light intensities.

Q. *I have a plant of Lc. Canhamiana alba that has made up a growth with a sheath but I have waited several months and still I don't see any buds coming up.*

A. It is characteristic of some hybrids, especially those with C. Mossiae blood in them, to mature a growth with a sheath and then wait until their season to bloom. C. Gigas (Warscewiczii) has a habit of flowering immediately as the growth is matured. We must remember that each species has its own growth habits which it imparts in varying degrees to its progeny. A good example of inheritance is C. Enid which is bred from C. Gigas X C. Mossiae. This hybrid has a habit of flowering two and even three times a year.

- Q. *Will my Cattleya plant flower at exactly the same time every year?*
- A. No. Though a plant can be expected to flower at approximately the same time each year, due to variations in weather and growing conditions it is impossible to predict exactly when it will flower, even though we know when it has flowered.
- Q. *What effect does repotting have on the flowering of a Cattleya plant?*
- A. Quite often a plant that is repotted in sheath will flower several months earlier than normal due to the shock of repotting.
- Q. *When does a Cattleya plant give its best flowers?*
- A. On the flowering just before it needs repotting. In other words the longer a plant is established and receiving good care the better are the chances of it bearing good flowers.
- Q. *I bought a plant from a reputable grower who said he had flowered it and it was a very good variety. I flowered it, however, and the flowers were average only.*
- A. The plant buyer who has purchased from a reputable grower must realize that the flowers we get on our plants are about 90% good growing and 10% good breeding. In other words, the finest Orchid in the world when poorly grown will be no better than an average one that is well grown. Never under any conditions, however, minimize the importance of good breeding.
- Q. *I have several plants that flowered this winter with poor sepal quality though they generally flower quite well.*
- A. This is a condition that is quite common throughout the country each year, especially in the fall. There is a certain relationship between drastic changes in growing conditions and the flower quality. When the weather turns cold and more artificial heat is used in the houses this trouble with flower quality seems to occur. It has proven beneficial in many cases to damp between the pots both at nightfall and again in the morning. Pay especial attention to ventilation at this time also.
- Q. *Should I feed my Cattleyas?*
- A. Though definite benefits are derived from feeding there is no substitute for ordinary good growing practices. In other words, feeding is not the short cut to good orchids or a substitute for lack of good growing. However, as we have said feeding is definitely beneficial if wisely done. Most commercial growers do not feed Cattleyas.
- Q. *How often should a Cattleya bloom?*
- A. It should bloom at least once a year, and may bloom twice a year or more, in the case of some of the more prolific hybrids.
- Q. *How long does an orchid plant live?*
- A. There is no life limit to a plant which is well grown. It will thrive indefinitely under good cultural conditions. Divisions off some fine varieties are known to be 50 and 60 years old and still doing well.

- Q. *How may the necessary high humidity be maintained in the greenhouse when one is away and does not have automatic humidity controls?*
- A. Spread gravel or crushed rock on the floor, use brick walks and place trays of coke under the benches. When well dampened down these will give off moisture for a long time. Sprays or atomizers under the benches automatically controlled are the perfect answer.
- Q. *Does it hurt to leave the flowers on the plant for a long time?*
- A. The flowers do take some strength from the plant, but if the plant is a strong and healthy specimen, it will not injure it to leave the blooms on it. If the plant is weak, they should be removed. If the plant is in a very poor condition, it is well not to allow it to bloom at all.
- Q. *Where do I cut the bloom from a Cattleya plant?*
- A. Always cut through the sheath about a half inch above the place where it joins the leaf and pseudobulb, using a clean sharp knife and making certain that a clean surface is left.
- Q. *What do you do with backbulbs?*
- A. If the plant is worthy of propagation, the backbulbs may be placed in a warm, humid spot, perhaps under the benches, and given light syringings until there is evidence of new growth. Then they are potted the same as mature plants, using a wire staple to hold the rootless rhizome firmly in the compost.
- Q. *Is a Cattleya a parasite?*
- A. No, the Cattleya is an epiphyte and derives much of its nourishment from the air. It is merely a tenant of the tree upon which it grows.
- Q. *Should orchid corsages be kept in the refrigerator?*
- A. No. Home refrigerators are usually too cold and the flower soon fades after being brought out into the warmer outside air. (Florists' refrigerators carry a temperature of 45 to 48 degrees.) It is better to keep your orchid bloom in a cool place where it may be seen and its beauty enjoyed.
- Q. *Please tell me the maximum number of times per year one can safely spray orchids with DDT.*
- A. DDT is not a spray to use casually, and should be used only when there is a need. As a matter of fact, excessive use allows the population of springtails and red spider to increase because it is ineffective against these, while it removes their predators. Its chief use for orchids is to rid them of scale and to control thrips. The latter are a particular nuisance in warm weather, when they blow in from the garden, and they may be accompanied by leaf hoppers and various other garden insects. A fair schedule for DDT would be once a month from April or May through September, and either not at all in the winter, or not more than once in three months if there is a need.

Q. *Is there any solution for "dry sepal"?*

A. Poor potting or sudden changes in weather conditions as is common during the fall months, over-watering, high temperatures at night, or excessive temperatures by day—all can be causes of dry sepals and general poor flower texture. In such cases the sepals dry almost as soon as the flower opens, and the rest of the flower will be poor and soon wither. Another type of dry sepals is that in which the sepals dry right away, but the rest of the flower remains of good texture for a long time. While improved potting and culture will help a great deal in the first type, this last may be an inherited condition. If it occurs year after year on the same plant, even if the plant is in good shape and grows vigorously, it may be that the plant is not worth keeping. Dry sepals are a problem with many growers, and turn many hopes into disappointments. Except for the inherited type, the condition is certainly a cultural one. Work is being done in an attempt to sift out the factors, and there may be some helpful information soon. In the meantime, we have seen many a plant improve with good, hard potting, careful watering, cool night temperatures, etc., so that this alone may solve your problem. (See supplementary question on Page 8.)

Q. *Should you cut off pseudobulbs when they lose their leaves?*

A. There is no reason to cut them off, except at repotting time, unless they become decayed. However, if the back pseudobulb or two become dry and shriveled and detract from the appearance of the plant, they may be removed. There is a movement of food minerals out of old plant parts into the younger ones, so even a leafless pseudobulb contributes to the nourishment of the plant for a while.

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